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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,279	09/29/1999	JOHN J. ROSATO	SCP-6620	3862

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EXAMINER
KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
1746	13

DATE MAILED: 04/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/408,279	ROSATO ET AL.	
	Examiner	Art Unit	
	Michael Kornakov	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *80-111* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *80-111* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 88, 89, 90, 95 and 97 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 10, 11, 44, 66 and 67 of copending Application No. 09/650382. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

3. The non-statutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225

USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 80-87, 91-94, 96, 98-111 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 45-56, 66-73 of copending Application No. 09/650382. Although the conflicting claims are not identical, they are not patentably distinct from each other because they recite the same method and utilize identical ingredients for the aqueous medium.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Drawings

5. The drawings filed on 09/29/1999 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 80 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling to minimize corrosion of certain metals, like aluminum or copper or titanium or their allows, while rinsing metallized substrates with certain organic anticorrosive agents, like mono and polycarboxylic acids and nitrogen containing compounds, disclosed on pages 8 and 9 of the instant disclosure, does not reasonably provide enablement for minimizing corrosion of any type of metallized substrates, utilizing any organic compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims without undue experimentation.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 80, 88 and 89 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting processing steps. See MPEP § 2172.01. While reciting "A method", the indicated claims do not provide any positive step for performing the indicated tasks.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 80-87, 90-94, 97-102 and 105-107 rejected under 35 U.S.C. 102(b) as being anticipated by Eisenmann (IBM Technical Disclosure Bulletin, v.18, No.8, page 2590).

Eisenmann discloses cleansing of aluminum metallization in pads and vias of semiconductor chips without corrosion of aluminum metallization utilizing the step of immersing chips into a solution with predetermined concentration of acetic acid and distilled water for the predetermined time, followed by rinsing with distilled water and isopropyl alcohol rinse to aid drying.

Therefore, all the limitations of instant claims 80-87, 90-94, 97-102 and 105-107 are met by Eisenmann.

8. Claims 80-107 are rejected under 35 U.S.C. 102(e) as being anticipated by Hineman et al. (U.S. 6,313,048).

Hineman discloses a method of cleaning surfaces of metallized semiconductors by contacting the said surfaces with a composition, which includes acetic acid. Hineman specifically indicates that acetic acid passivates a metal containing surface being cleaned, thus preventing undesirable removal (compare to corrosion, as instantly claimed) of substantial amounts of the metal (see abstract, col. 4, lines 48-51). The method of Hineman can be applied for cleaning operatipons, performed in fabricating a multilevel interconnect structures, which include the layers of aluminum, aluminum, alloyed with copper, titanium nitride, etc. (col.6, lines 30-39). The exposure time of semiconductor structure to the cleaning composition is adjusted to allow for adequate

cleaning without removing excess metal from underlying surfaces (col. 7, lines 25-30). The cleaning composition of Hineman can be applied to metallized surface for **one or more** of the cleans (col.9, lines 34-35).

Therefore, all the limitations of instant claims 80-107 are met by Hineman.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 108-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenmann (IBM Technical Disclosure Bulletin, v.18, No.8, page 2590) in view of EP 0784336.

Eisenmann discloses cleansing of aluminum metallization without corrosion utilizing immersing of metallized substrates into a solution with predetermined concentration of acetic acid and distilled water for the predetermined time, followed by rinsing with distilled water and isopropyl alcohol and further drying. Eisenmann does not specifically disclose the drying technique. However, Eisenmann indicates the use of isopropyl alcohol (isopropanol) to aid drying.

EP'336 teaches a method of cleaning a semiconductor substrate, which includes steps of rinsing the semiconductor substrate with solution comprised acetic acid and vapor drying the semiconductor substrate with the vapor comprised isopropanol (see abstract). The steps of rinsing and drying may be performed in the same processing tank (page 3, lines 58-59).

Because Eisenmann and EP'336 both teach cleaning/rinsing of semiconductor substrates with acetic acid, followed by drying, and Eisenmann provides for the use of isopropanol to aid drying procedure, and since EP'336 utilizes isopropanol vapor for the drying of semiconductor substrate, and since it is a conventional knowledge that isopropanol vapor removes water droplets from semiconductor surfaces, one skilled in the art would have found it obvious to dry metallized substrates of Eisenman with

isopropanol vapor of EP'336 in order to simplify the drying process and eliminate any water droplets from the metallized substrates of Eisenmann.

Therefore, combination of references renders claims 108-111 prima facie obvious and properly rejected under 35 U.S.C. 103(a).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nam (U.S. 5,863,344) provides cleaning solutions for semiconductor devices comprising acetic acid, which minimizes damage to metal layers of the devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9310 for regular communications and (703) 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

Michael Kornakov
Examiner
Art Unit 1746

MK
March 10, 2002

RANDY GULAKOWSKI
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